Syntax
Last Resort and Agreement

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Phonology – Morphology – Syntax

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Vehicle requirement on Merge

Recall:

- Restrictions on Merge were expressed by assuming that a lexical item (LI) can bear c-selectional features [uF].
- Since [uF] on a syntactic expression ϕ is not interpretable, the Principle of Full Interpretation (1) requires [uF] to be deleted by merging ϕ with another syntactic expression ψ that bears [F] (2).
- This forces ϕ to be merged with ψ. More generally, it forces ϕ to be merged.

(1)   *Full Interpretation*:
       Syntactic objects that are send to the interfaces must not contain uninterpretable features.

(2)   Merge(ϕ[uF], ψ[F]) $\rightarrow$

$$
\begin{array}{cc}
\phi & \psi \\
[\text{uF}] & [\text{F}]
\end{array}
$$

       (where, for instance, ϕ = *shave*, ψ = *himself*, F = N.)

Vehicle requirement on Merge

But:

- In principle, Merge is free to apply. In other words, if some expression ϕ does not bear any [uF], then ϕ can merge with any other constituent ψ (also not bearing any [uF]).

- A theory-internal complication of such Merge is that we do not know what the head of the resulting constituent is. Recall that we defined the notion of head such that the head is the category whose [uF] gets deleted via Merge.

(3) $\text{Merge}(\phi, \psi) \rightarrow$
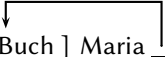
```
        ?
       /\
      /  \
     φ    ψ
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Vehicle requirement on Merge

Parametrization:

- Another complication involves parametrization: If Merge (and thus also Move, which is an instance of Merge) is feature-driven, then it becomes easy to model why some languages exhibit a certain movement and others do not.

- German scrambling of one object across the other (4-b) is possible because it has the relevant feature to trigger the movement, while, for instance, English does not (5-b).

(4) a. Karl gab Maria [$_{NP}$ das Buch].
         Karl gave Maria   the book
         'Karl gave Maria the book.'

     b. Karl gab [$_{NP}$ das Buch] Maria __ .
         Karl gave   the book   Maria

(5) a. John gave Mary [$_{NP}$ a book].
     b. *John gave [$_{NP}$ a book] Mary __ .
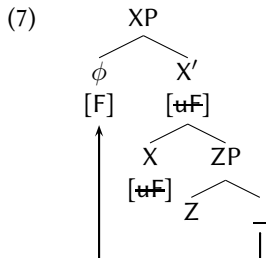
Vehicle requirement on Merge

Solution:

- Not only do selectional features restrict the application of Merge, but the application of Merge is assumed to be contingent on the checking of (selectional) features (Svenonius 1994, Bobaljik 1995, Pesetsky and Torrego 2006).

- This is sometimes referred to as the Vehicle Requirement on Merge (VRM, Pesetsky and Torrego 2006):

(6)   *Vehicle Requirement on Merge*:
       Merge of categories ϕ and ψ is driven by (only possible due to) checking a c-selectional feature [uF] on ϕ with [F] on ψ.

Vehicle requirement on Merge

Consequence:

- The idea that movement is contingent on feature checking is often referred to as a principle called *Last Resort* (8) from Chomsky (1995) (now derivable from the VRM).
- Assuming that c-selectional features are projected, the sisterhood requirement on checking such features would be fulfilled when ϕ bearing [F] undergoes movement to SpecX, where X bears [uF], (7).
- The following implication holds: movement $\rightarrow$ feature checking.

(7)

(8)   *Last Resort*:
Movement of ϕ to SpecX is contingent on feature checking between ϕ and X.

Vehicle requirement on Merge

Example: subject raising:

- In English, T bears not only [uv] (or [uv$_{mod}$], or [uv$_{perf}$], etc.), but also a [uN]-feature, which triggers Merge of an NP to SpecT.
- If no NP is taken from the lexicon (such as the expletive *there* (10-b)), then some NP from within the tree must undergo movement to satisfy this c-selection requirement (9)/(10-a).

(9)
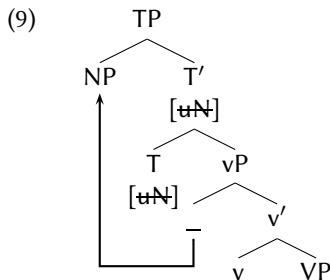
(10) a. Posy cried.
      b. There died someone.

Historical note

A historical note:

- This is, in essence, the assumption in Chomsky (2000, 2001), which is adopted in much current work. For historical reasons, a feature such as [uN] is often called an *EPP-feature* (the expression stemming from the Extended Projection Principle of Chomsky 1981).
- In Chomsky (1993, 1995) the assumption still was that movement is contingent on less abstract features, namely features involved in agreement (e.g., Φ-features such as person, gender, and number, or maybe case features), which may surface in the morphology.
- In what follows, the theory of agreement pursued in Chomsky (1993, 1995) is briefly illustrated. Then, the reasons are documented why it was abandoned in Chomsky (2000, 2001).
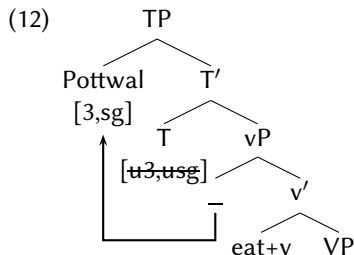
Spec-head agreement

Reminder:

- T not only bears [tense], but (in English) it also bears the features [person] and [number], which are relevant for subject-verb agreement.
- This becomes evident, for instance, in contexts of VP-ellipsis: while such agreement is realized on the verb in the antecedent clause of ellipsis in (11-a) (here: agreement for 3rd person, singular), it is realized outside vP in the clause that involves VP-ellipsis (which, in fact, is vP-ellipsis), see (11-b).

(11)   a.   Dr. Brumm eat-*s* the honey . . .
          b.   . . . but Pottwal do-*es* not Δ.
              (Δ = *eat the honey*)

Spec-head agreement

Assumption (Chomsky 1993, 1995):

- The agreement features on T are uninterpretable and have to be checked off. Such feature checking can apply only if the interpretable corresponding features on the agreeing noun are located in the specifier of T (Chomsky 1986): *Spec-head agreement* (12).
- This was supposed to explain why there is movement to SpecT of the category that agrees with T.
- Thus, the following implication holds: feature checking $\rightarrow$ movement (qua instance of Merge).

(12)

Spec-head agreement

Further motivation (Kayne 1989):

- In French/Italian, past-participle agreement with the object does not arise if the object remains in the position where it is merged (13-a).
- Only if the object moves (e.g., because it is a clitic) does past-participle agreement become possible (13-b).
- On the way to its final position, the clitic makes an "intermediate stop" in the specifier of the projection bearing participle agreement (an outer Specv) (14).

(13) a. Paul a   repeint-(*es) les chaises.
          Paul has painted-FEM.PL the chairs.FEM.PL
          'Paul painted the chairs (again).'

      b. Paul les   a   repeint-es.
          Paul them.FEM.PL has painted-FEM.PL
          'Paul painted them (again).'

Spec-head agreement

(14)
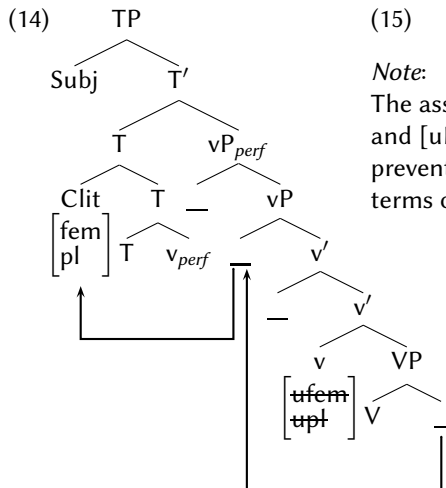
(15)   Paul les a repeintes.

Note:
The assumption that the features [uGen]
and [uNum] on v are checked must not
prevent their morphological realization in
terms of agreement.

The problem

Result:
We therefore have the biconditional: movement $\leftrightarrow$ feature checking.

However:

- On the one hand, there are cases of agreement without Spec-head configuration. But if agreement is not restricted to Spec-head, then it cannot be the rationale for movement.
- On the other hand, there are cases of movement without ϕ-agreement. This means that a) either movement is triggered by features different from ϕ, or b) movement is not feature-driven at all.
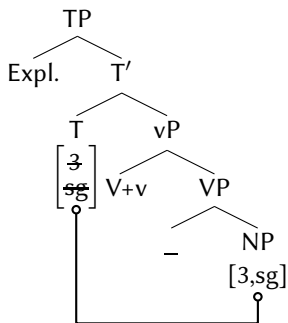
Agreement without movement: Expletives

Expletives:

- Some languages, among them English, have a construction where SpecT is not occupied by an argument but by a semantically empty element, an expletive (*it*, *there*, cf. (10-b)).

- Nevertheless, T agrees with some vP-internal argument (indicated by ○—○ in (17)), and not with the expletive, see (16-a-d). This requires additional (ad hoc) assumptions under the hypothesis of spec-head agreement.

(16)   a.   There arrive-*s* a train.
      b.   *There arrive-∅ a train.
      c.   There arrive-∅ many trains.
      d.   *There arrive-*s* many trains.

(17)

TP
- Expl.
- T′
  - T $\begin{bmatrix} 3 \\ sg \end{bmatrix}$
  - vP
    - V+v
    - VP
      - _
      - NP [3,sg]

(18)   There arrives a train.

Object agreement:

- Some languages exhibit object-verb agreement in the presence of a subject argument. (19) illustrates with Palauan (Austronesian; Georgopoulos 1991).
- The object appears to remain in the complement position of the verb, i.e., does not enter into a spec-head relation with v, here assumed to be responsible for object agreement.
- (Note: For simplicity, (20) involves a right-ward specifier for the subject. Under the assumption that there are no right-ward specifiers, the word order in (19) requires further assumptions.)

(19)   te-'illebed-ii a   bilis a   rngalek
         3.PL-hit-3.SG ART dog ART children
         'The kids hit the dog.'

(20)
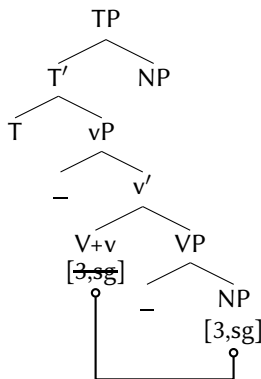
(21) The kids hit the dog.

Question:
Can you think of an analysis in
terms of Spec-head agreement?

Irish VSO:

- In (most) Celtic languages, the predominant word order in declaratives is VSO. For Irish, this is analyzed in McCloskey (1996) such that the verb moves to T while the EA remains vP-internally, see (22-a) (McCloskey and Hale 1984).
- With local (non-third) person pronouns, there is verbal agreement (22-b). This suggests that Irish exhibits agreement without spec-head configuration.

(22) a. Chuirfeadh Eoghan isteach ar an phost sin.
          put.COND Owen in   on that job
          'Owen would apply for that job.'
      b. Da gcuirfeá   isteach ar an phost sin gheobhfá   é.
          if put.COND.2.SG in   on that job   get.COND.2.SG it
          'If you applied for that job, you would get it.'

Agreement without movement

(23) CP (V-to-v ignored)
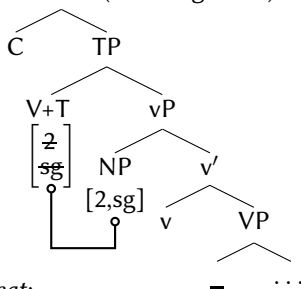
(24) If you applied for that job, ...

Caveat:

- The situation is complicated by the fact that the subject must not be pronounced in Irish if agreement is morphologically realized.
- Thus, one cannot really see whether the subject in (22-b) is in Specv or SpecT. The argument extrapolates from the fact that putting the subject in SpecT is impossible with full nouns, and assumes that full nouns also trigger agreement (which is morphologically not realized).

Spanish VOS:

- In Spanish, it is possible to have (alongside the canonic SVO word order) the word order VOS (25-a,b).
- There still is agreement between T and the subject in Specv (see, in particular, plural agreement in (25-a)).
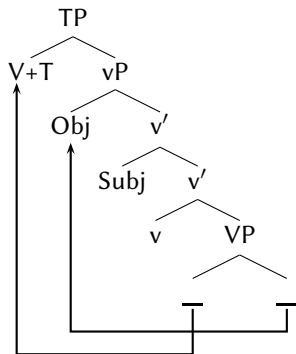
(25)   a.   Compraron un libro todos los estudiantes.
           buy.PST.3.PL a book all the students
           'All the students bought a book.'

         b.   Leyó la carta María.
           read.PST.3.SG the letter María
           'María read the letter.'

Agreement without movement

Analysis:

- The subject remains in (the inner) Specv, while the object shifts to an outer Specv. Finally, the usual verb movement to T applies (26) (Ordóñez 1997, Gallego 2013; V-to-v movement is ignored in (26)).
- No Spec-head relation obtains between subject and T. Yet, there is agreement.
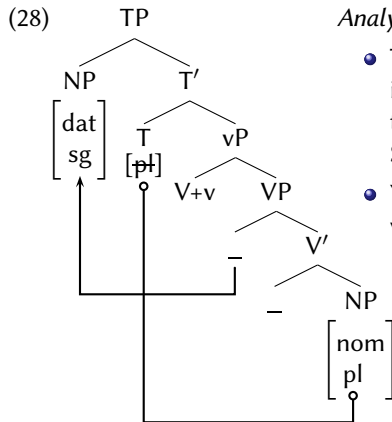
(26)

```
            TP
          /    \
       V+T      vP
        ↑      /   \
            Obj     v'
             ↑     /   \
               Subj     v'
                       /   \
                      v     VP
                           /  \
                          ‾    ‾
```

Agreement without movement: Quirky subjects

Icelandic "quirky" subjects:

- In Icelandic, dative-marked NP (for instance an indirect object) can show up in a position preceding a past participle.
- This is shown in (27-a,b) (Zaenen et al. 1985), where the dative NP *konungi(um)* "(the) king" precedes *gefnar* "given". T agrees with the object *ambáttir* "slaves".
- (The expletive það and the PP *um veturinn* occupy SpecC; Icelandic is a V2-language!)

(27)   a.   það voru konungi gefnar ambáttir í vetur.
              EXPL were king.DAT given slaves.NOM in winter
              'There was a king given slaves this winter.'
        b.   Um veturinn voru konunginum gefnar ambáttir.
              in winter were the.king.DAT given slaves
   'In the winter, the king was given slaves.'

(28)

Analysis:

- The participle marks the position of v (T is occupied by the auxiliary). Therefore, the dative arguably has moved to SpecT: it has become a *quirky* subject.
- Yet, agreement in this context is always with the nominative-marked object.

Movement without agreement

Examples:

- The quirky-subject construction in Icelandic also illustrates that movement cannot be contingent on ϕ-agreement: it is the non-agreeing dative-marked argument that moves to SpecT.
- Another instance of movement without agreement is raising in (non-agreeing) infinitives, which becomes detectable in case there is a pronounced subject within the infinitive, as is the case in *for*-infinitives in English (29).

(29)

(30) [$_{CP}$ For Pottwal to go swimming] ...
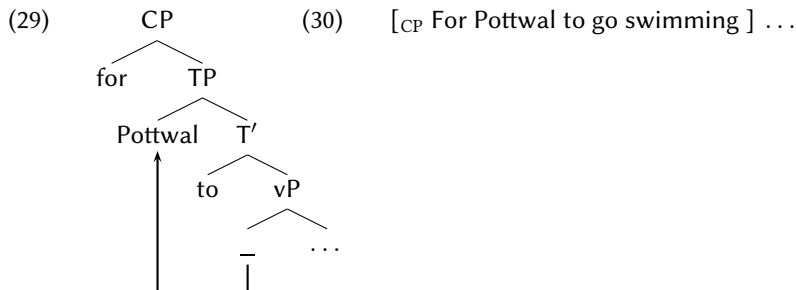
Conclusion

Conclusion:
Movement and agreement (in the narrow sense of the word, e.g. ϕ-agreement) are independent from one another: Neither does agreement license movement, nor is movement a prerequisite for agreement.

Consequences:

- The implication feature checking $\rightarrow$ movement is abandoned. Rather some cases of feature checking (ϕ-agreement) simply apply under c-command (see below).
- The implication movement $\rightarrow$ feature checking is maintained (in order to comply with the VRM). There is a price, however. One must postulate an abstract type of feature (i.e., a feature without morphological reflex), called EPP-feature.

Relativized EPP-features

Note:

- In many cases, it is useful to relativized EPP-features to certain properties of the attracted category: In the case of subject raising in English, only nominals are affected: $EPP_{[N]}$.
- *Wh*-movement (movement of a *wh*-phrase such as *who*, *what*, etc.) to SpecC can be analyzed as involving $EPP_{[wh]}$ on an interrogative C-head.
- The filling of SpecC in V2-languages can affect basically any category. It is often analyzed by applying by means of EPP_{top}, i.e., an EPP-feature relativized to the "sub-feature" [top] (for "topicalization"). At least one category within a V2-clause must then be equipped with [top] in order to satisfy EPP_{top} on C.

(31)
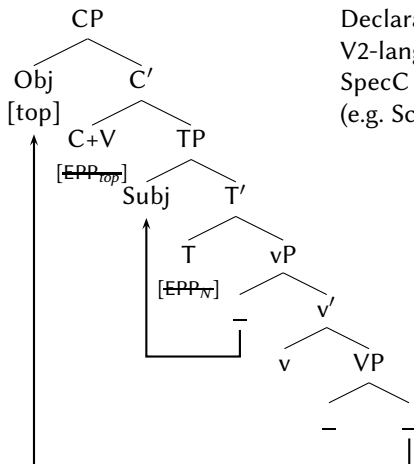
Abstract example (31):
Declarative clause in a VO
V2-language with object fronting to
SpecC and subject raising to SpecT
(e.g. Scandinavian).

Agree

Chomsky (2000, 2001):

- ϕ-agreement (agreement in general) applies when the uninterpretable ϕ-feature(s) of a functional head (the *probe*), such as T, c-commands the interpretable ϕ-features of an argument (the *goal*).

- Typically (but not logically necessarily), the probe lacks a value (it is taken unvalued from the lexicon). It receives its value by entering into the relation *Agree* (32) with a matching goal that bears a value.

- The dichotomy between valued and unvalued features reflects the fact that the ϕ-values of the verb are not lexically fixed (such as gender or person on a noun) but depend on the ϕ-values of the subject (in the case of subject-verb agreement).
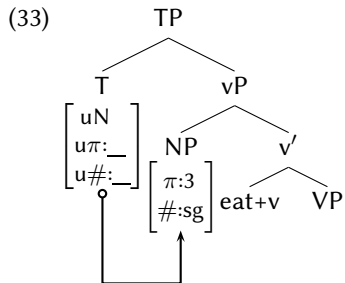
(32)   *Agree:*
An (unvalued) probe [uϕ:__] may enter into Agree with a goal
[ψ:ω] (value ω), only if
a.   [uϕ] and [ψ] match (i.e. $\phi = \psi$), and
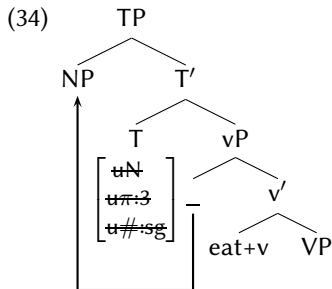b.   [uϕ] c-commands [ψ:ω].
Agree leads to [uϕ:ω] (valuation) and [u̶$\phi̶$] (checking).

Example:
(33) instantiates the functioning of Agree for a simple case of subject-verb
agreement (plus subject raising) such as *Dr. Brumm eat-s the honey.*

Agree

(33), (34) syntactic tree diagrams

$(\pi = \text{person}, \# = \text{number.})$

(35)   Dr. Brumm eat-s the honey.

Morphology and agreement

Question:

If the ϕ-features are located on T, why are they morphologically expressed on the verb (in simple cases for English: without auxiliary, modal, etc.)?

Answer:

- At first sight, it may seem attractive to make use of Agree to transfer the ϕ-features of the subject onto the verb (cf. Adger 2003).
- Assuming that there is a ϕ-probe on v that can be projected onto the v′-level, the relevant c-command relation between the EA in Specv and the ϕ-probe would be established (36).

(36)
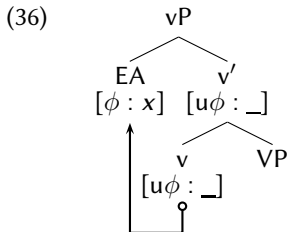
Morphology and agreement

But:
Such an analysis begs the question as to why ϕ-agreement is not realized twice: once on the verb, once on T (e.g., via *do*-support), or twice on the verb, see (37-b,c). It therefore requires further assumptions.
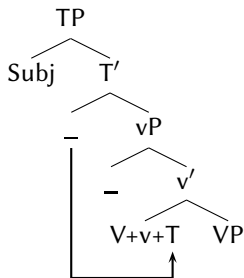
Classic alternative (e.g., English):

- Only T agrees with the subject. If T is empty, the ϕ-features on T get onto the verb by *lowering* T, thereby adjoining it to V+v forming V+v+T (Chomsky 1957, *affix hopping*), see (40).
- Such lowering cannot be an instance of (internal) Merge in the syntax, given the Extension Condition (Chomsky 1995). We will come back to this later.

(37) a.   Dr. Brumm really do-es love the honey.
       b.   *Dr. Brumm really do-es love-s the honey.
       c.   *Dr. Brumm love-s-(e)s the honey.

(38)

TP
Subj   T′
        vP
      v′
   V+v+T   VP

(39)   *eat-s* = [$_V$ eat]+[$_v$ Ø]+[$_T$ -s]

Note:

- Lowering depends on the overtness of T (does not apply if T is the target of syntactic head-movement of an auxiliary).
- This suggests that it applies after the syntax in the morphology/ the interface to phonology: PF.

Other languages:

- Languages that exhibit V+v-to-T movement (e.g., French, Icelandic) do not require lowering in the post-syntax.
- In such languages, it is syntactic head-movement that brings T into a position where its affixal nature can be satisfied in the morphology.

(40)
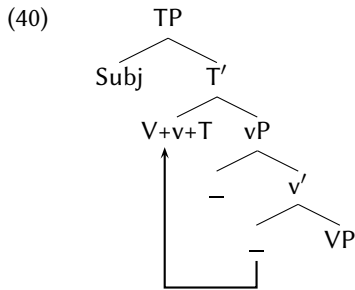
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